UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/588,484	01/18/96	THUNDAT T	2240-7141

MM21/0330

EDWARD A. PENNINGTON
MORGAN & FINNEGAN, L.L.P.
345 PARK AVENUE
NEW YORK NY 10154

EXAMINER	
HANIG,R	
ART UNIT	**PAPER NUMBER**
2878	24

DATE MAILED: 03/30/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
08/588,484	THUNDAT ET AL
Examiner	**Group Art Unit**
HANIG	2878

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☒ Responsive to communication(s) filed on 3/15/99.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 2-16, 18-24, "25-28" → 32-35 (rule 126) is/are pending in the application.

Of the above claim(s)_____ is/are withdrawn from consideration.

☒ Claim(s) 24 is/are allowed.

☒ Claim(s) 2-16, 18-24, 32-35 is/are rejected.

☐ Claim(s)_____ is/are objected to.

☐ Claim(s)_____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on_____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on_____ is/are objected to by the Examiner.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number)_____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received:_____.

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s)._____ ☐ Interview Summary, PTO-413

☐ Notice of Reference(s) Cited, PTO-892 ☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948 ☐ Other_____

Office Action Summary

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-16, 18-23, and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There are a number of errors made in the amendment of March 15, 1999. Claims 25-31 had been canceled in the amendment of February 11, 1997, therefore the new claims that have been added and numbered "25-28" will be changed according to rule 126 to "32-35". Claims 2-16 should depend on claim 32 not claim 25. Claims 18-24 would appear to depend on claim 34 not claim 27, however, claim 34 is drawn to a plurality of sensors (an array of microcantilever sensors is what is meant but this is missing form the claim) and claims 18-23 address only one microcantilever sensor, so there is an antecedent basis problem here. This same problem exists for claim 35 . Note claim 24 was made into an independent claim in the amendment of February 11, 1997.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 34 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. Having microcantilever sensors are critical or essential to the practice of the invention, but not included in the claim is not enabled by the disclosure. See *In re Mayhew*, 527

F.2d 1229, 188 USPQ 356 (CCPA 1976). Without the mention of microcantilever sensors one skilled in the art does not know what "physical property" is being affected.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 32, 33, 2, 5, 7, 8, 10, 11, 12, 34, 35, 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnes et al (Nature, vol. 372, 11/3/94 p.79) in view of Halsor et al (3896309). Barnes et al show the microcantilever sensor that senses radiation indirectly by the heating effects (see page 80 col. 2) and they could measure an unknown amount of radiation. Their readout system is an optical deflection of light, but they also imply that other parameters can be used to indicate the bending. They cite an example from the field of force microscopy, where a change in tunneling current can be sensed. Barnes et al does not necessarily show a multiwavelength range detector or an array. Halsor et al shows the same inventive concept and discusses a multiwavelength radiation detector (col. 1, line 12); their readout system has the sensor bending and uses the measurement of surface conductivity as an indicator of radiation . Halsor et al discuss using an array (see abstract). It would have been obvious to one of ordinary skill in the art to have a sensor in Barnes et al with a wide range of wavelengths so that it is

flexible; and using the sensor in an array configuration as taught by Halsor et al depending on the area those sensors had to monitor.

5. Claims 3, 4, 6, 9, 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnes et al in view of Halsor et al as applied to claims 32, 33, 2, 4, 5, 7, 8, 10, 11, 12, 34, 35, 18-23 above, and further in view of Barker (3415712) or Burns et al (5550516). These references do not show the measurement of capacitance or a mechanical or resonating frequency as an indicator of radiation, but Barker uses the measurement of capacitance (see fig. 5) and Burns et al show using a resonating frequency measurement (col. 10, line 30) as indicators of how much a bimetallic strip bends due to some external influence. The actual source of the bending is not important in these two references. It would have been obvious to one of ordinary skill in the art to use different readout systems such as in Barker or Burns et al in the sensor of Barnes et al and Halsor et al depending on the sensitivity needed or as an obvious design choice to solve a specific problem. There are many ways to readout and correlate the bending of a bimetallic strip to some physical quantity of the system being measured and one skilled in the art would know these techniques.

6. Claim 24 is allowed (see paper # 17 for examiner's reasons for allowance).

7. In regards to applicant's arguments note on pages 5 and 6 the reference to canceled claims 1 and 17 should be to claims 32 and 34. In regards to applicant's arguments that Barnes et al do not measure radiation, they have to calibrate their system, so inherently they have to measure the bending of their cantilever under the effects of radiation alone without any substance

on the cantilever in order to characterize the effects of the radiation on their system in order to acquire a baseline measurement. The reference Halsor et al also measures radiation and this is unambiguous. The applicant has said (page 5) that the amount of radiation on the instant sensor is "irrelevant". This is not the case, claim 32 has next to the last line correlating changes to a physical property "to a measure of" that radiation. This means an amount of radiation is being measured which implies calibration and is not just an indicator of whether radiation is present or not.

The applicant has argued on page 6 that the array of claim 34 is for imaging. This is not the case, there is no reference to imaging in the claim and there is not sufficient detail in the specification to support a claim drawn to imaging.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. Hanig whose telephone number is (703) 308-4853; or the receptionist (703) 308-0956. Fax No. (703) 308-7722.

Edward Westin

RH
March 29, 1999

Edward P. Westin
Supervisory Patent Examiner
Technology Center 2800